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CODIB-D-23  
8 January 1959

UNITED STATES INTELLIGENCE BOARD  
COMMITTEE ON DOCUMENTATION

MEMORANDUM FOR: USIB Committee on Documentation  
SUBJECT : CIA Minicard Test

1. The Office of Central Reference has now received a set of Minicard equipment which is expected to be ready for operation by February.

2. Planning has been underway for some months to test the equipment and to evaluate the capabilities of possible Minicard systems relative to Intellofax. The conclusions from this study are contained in the attached paper which is forwarded for your information and comment.

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Paul A. Borel  
Chairman

Attachment

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CENTRAL INTELLIGENCE AGENCY

OFFICE OF CENTRAL REFERENCE

22 December 1958

MEMORANDUM FOR: Assistant Director/Central Reference

SUBJECT : Minicard Test

I. Problem:

To measure the capabilities of Minicard as a potential replacement to OCR's Intellofax System.

II. Background:

- a. OCR placed an order for Minicard in 1955 when the equipment was in the blueprint stage of development. The Intellofax System using IBM equipment was then experiencing increasing difficulty with rapidly growing card files, slower search times and lack of funds, staff, space and equipment necessary to maintain original levels of service.
- b. Minicard, on the other hand, although untested, was described as offering:
  - 1) Superior subject retrievability through improved storage and search of subject relationships, i.e., phrase coding, clear text coding.
  - 2) The new idea of storing both codes and document images in the same unit card.
  - 3) Maximum space economy through use of a 60-1 film reduction ratio.
  - 4) Machine operating rates superior to IBM.
- c. At the start of 1959 Minicard prospects have changed substantially. Engineering problems have forced modifications reducing original design objectives. Extreme miniaturization which eliminates manual access may prove inferior to OCR's 16mm aperture card system which has now had five years of testing. The combination of codes and images in the same card is now questioned by outside experts and in OCR is seen to involve more expensive input and

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loss of the bibliography - Intellofax tape - as a step to the selection and retrieval of documents. Minicard code storage on film is now recognized as inferior in all respects to code handling on magnetic tape. Finally, it is now certain that OCR's set of Minicard equipment operating on a one shift basis can handle no more than 30 to 40% of the current document load. Additional pieces of equipment will be required not only to reach minimum total operating capacity but as insurance against breakdown as well. Present information is that additional orders will cost OCR 3 to 5 times the item costs in the original order and require from one to two years to fill.

- d. A decision to convert from Intellofax to Minicard under the above circumstances obviously requires the most careful determination in advance of costs, capabilities and prospective benefits from the new system.

### III. Discussion:

The following paragraphs outline what is regarded as the minimum testing necessary for an evaluation of Minicard.

- a. It is proposed to extract over a one-month period a sample of 20-25,000 raw information reports, 10% of OCR's annual receipts, which will contain a normal mixture of document categories by source, format, variety of enclosures, and present every variety of problem in subject coding and in photography, i.e., document paper, ink, size, length, color and quality.
- b. The test corpus will be fully processed into three information storage and retrieval systems:
  - 1) Intellofax.
  - 2) Minicard - with codes and document images stored together in a single card.
  - 3) Minicard - with codes and document images stored in separate but related cards.
- c. The test program will be separately staffed and operated to minimize interference with routine Intellofax operations.
- d. Input to the three test systems will be accomplished in 8 or 9 months contingent on Mini-coding techniques yet to be perfected. A slower schedule would lessen impact on Intellofax by reducing the requirement for coders but would also result in unrealistic rates of Minicard input for equipment testing.

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- e. Towards the end of the input period subject retrieval tests would begin to compare the effectiveness of the three systems in all essential respects including effectiveness of Mini-coding, rate of error, time and staff costs, machine performance and acceptability of product to requestors and to library staff.
- f. A number of additional features of Intellofax would be evaluated as a by-product of the main test:
  - 1) The role and importance of a source card file (i.e., card inventory of document holdings arranged by source).
  - 2) The utility of a hard-copy document collection to analysts for search (browsing) purposes and to the library for retrieval and direct copy purposes.
  - 3) The effect of present OCR nodexing policies (i.e., elimination of marginal subjects from indexing).
- g. After 9 to 12 months of input and retrieval testing of the three systems, the performance rates and costs of each would be projected to full-scale operations covering a minimum five-year document collection. A final determination could then be made to adopt one of the Minicard systems or to retain Intellofax.
- h. Appendix A outlines staff requirements and procedures relating to the extraction of the document test set and its control, subject coding, and storage. Appendix B outlines staff requirements and procedures for operating the IBM and Minicard equipment which would be required for the test.
- i. A secure document storage area of about 120 square feet housing one double-face, six section range of steel shelving would be required.
- j. Impact on Intellofax:

Machine Division - An estimated T/O of 17 persons would be required, 11 to operate Minicard equipment, 6 to prepare Minicard input tapes and to duplicate Intellofax cards for the test set. The T/O requirement would be heaviest during the first month when both Intellofax duplication and Mini-filming for the two-card Minicard System would be accomplished.

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Document Division - Regular Intellofax coding and Mini-coding cannot be performed in seven months by the present Analysis Branch staff. Detail of coders from other OCR Divisions, use of overtime, and the acceptance of Air Force coding as input to both Intellofax and Minicard appear essential.

#### IV. Conclusions:

- a. OCR requires the earliest possible solutions to certain Intellofax problems. On the subject retrieval side these are being approached through such measures as revision of the Intelligence Subject Code and the use of a composite reference group to direct subject searches. With respect to the Intellofax IBM equipment and card-handling capabilities, no developments are in sight which will enable Intellofax to manage ten, fifteen and twenty-year indexes with the staff and space, etc., now allocated to servicing the current 5-year Intellofax file of 3,000,000 cards and to making limited use of the 1948-1953 4,500,000 card file at the CIA Record Center.
- b. Minicard is the only alternative to IBM now in being, which, although completely untested, claims an order of capability required to deal with the intelligence document indexing problem.
- c. Any installation and test of a new system replacing Intellofax will raise difficult staffing and conversion problems.
- d. OCR has invested to date the sum of approximately [ ] in original Minicard equipment, test equipment, supplies and training. Up to [ ] will be required during the last half of FY59 to cover maintenance, repair and stocking of spare parts. [ ]  
The OCR operating test, herein proposed, would require an estimated T/O of 26 for periods up to one year (up to [ ] in salary costs) by diversion from Intellofax or other assignments.
- e. OCR appears to have just two basic alternative courses of action:
  - 1) To conclude, in spite of current budget and personnel restrictions, that the investment in Minicard warrants an OCR test of its capabilities, or
  - 2) To conclude that Minicard prospects are no longer sufficiently promising to justify additional investment, therefore, that the equipment should be disposed of and the cost held to [ ] adjusted for over-run and resale factors.

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**f. Range of possible test results:**

**1. Favorable:**

- a) Minicard by proving its capabilities in handling more sophisticated coding and providing faster search results might materially relieve some Intellofax problems.
- b) If Minicard document storage proved unpromising, a code/first page Minicard application might still be advantageous since minimum additional equipment would be required and important savings in card storage space and handling times might be realized.
- c) Minicard might be developed as a long-range code storage system for retrospective searching, leaving the present OCR aperture card film storage and punched card system to handle current five-year load.

**2. Unfavorable:**

- a) The test will seriously reduce Intellofax operating efficiency during a 6-12 months period.
- b) Even with favorable results, the test requires an increase in OCR Minicard investment from [redacted] [redacted] Then OCR will be faced with ordering additional sets of equipment on slow delivery schedules in order to convert the entire Intellofax System to Minicard.
- c) Minicard would enter the test with the consensus of OCR criticism against it on three major counts:
  - (1) Even on paper, Minicard document storage lacks the flexibility of the 16mm aperture card system.
  - (2) Minicard sort and file techniques promise no significant improvements over IBM. In fact, they are likely to prove inferior because manual access is eliminated.
  - (3) Coding for Minicard will be substantially slower and more expensive than coding for Intellofax.

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g. On balance it is concluded that OCR, having already made a substantial investment in Minicard, and in spite of its many major reservations about the system, ought to make its own direct evaluation before discarding the equipment.

V. Recommendation:

That the minimum test plan as described above be implemented to evaluate Minicard as a potential replacement for Intellofax.

  
Deputy Assistant Director  
Central Reference

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APPROVED:



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cc. DD/I  
Chairman, Project Review Committee

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